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ABSTRACT

This guide is intended to help industrial education teachers and administrators to "mainstream" handicapped students into regular industrial education classes. The booklet introduces the concept of mainstreaming, relates it to industrial education, and defines various handicapping conditions, such as physical handicaps, visual and hearing handicaps, mild mental retardation, and emctional handicaps. It then offers specific suggestions for teaching students with various conditions and adapting the environment to their needs. Principles are enumerated for the educator preparing special needs students to enter the work world; techniques for evaluating the vocaticnal curriculum and the special needs learner are presented; and a sample vocational curriculum for the special needs learner is included. The guide contains nineteen suggested industrial education activities for the special needs learner, as well as a list of resources for the vocational educator. (KC)

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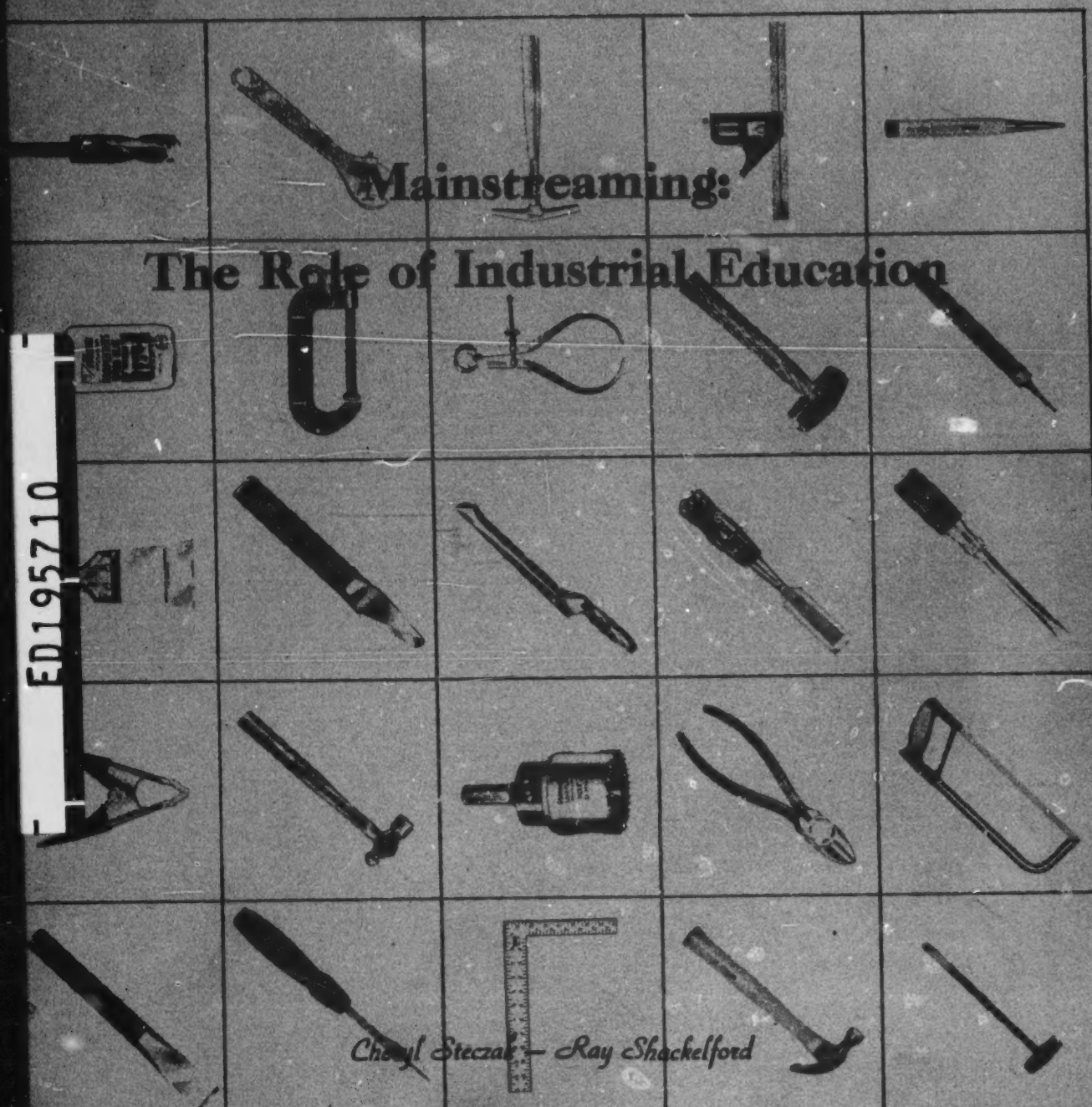

Mainstreaming:
The Role of Industrial Education

ED195710

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U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

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MAINSTREAMING: THE ROLE OF INDUSTRIAL EDUCATION

"One of the most dramatic movements in education that has occurred during the past decade concerns education for handicapped persons. With the passage of Public Law 94-142 and Section 504 of the Rehabilitation Act of 1973 handicapped persons now have the legal right to a free public education in a setting that is most appropriate for an individual's unique needs.

A major response to this legislation is to provide educational programs where handicapped students can be placed in settings with non-handicapped peers; a policy known as mainstreaming. As mainstreaming gains momentum more and more handicapped students who have previously been educated in isolated, segregated settings will join their peers in regular classrooms. The benefits of the mainstreaming movement can be immense. In many cases, handicapped students will now be able to live with their families in home communities rather than attending a residential school designed for students with a particular handicap. Non-handicapped students will have the opportunity to learn with and from their handicapped classmates. The ultimate cost of education for handicapped students may be reduced as their need for full-time special services diminishes. As more handicapped persons are provided with education more will join the work force and leave welfare status. Thus, the mainstreaming movement will indeed make an impact. That is, if the movement works--and it is more likely to work if educators, parents, community members, and the students themselves strive together to make it an effective movement.

Industrial Education teachers have a vital role to play in the mainstreaming movement. One of the first classes in which handicapped students may be placed with non-handicapped peers is industrial education because in

this curriculum individual, concrete learning experiences are already established teaching strategy. Thus, the industrial education teacher plays a leading role in the mainstreaming movement. If students find success in industrial education, other classes may then be added.

To be prepared for this vital role, industrial educators need to be more academically and attitudinally prepared to work with handicapped students. The following guidelines have been recommended by effective Indiana teachers of handicapped students:

Identify. If at all possible identify the handicapped students who will be enrolled in the classroom prior to meeting the class for the first time.

Conference. Conferencing with each handicapped student prior to class can help the teacher begin to establish rapport as well as provide an opportunity to gather pertinent data. At this time the teacher can learn more about the student's functional ability and what previous experiences that student may have had in industrial education related activities in the home.

Prepare the non-handicapped students. If the handicapped student is new to the school it may help the non-handicapped students to discuss the handicapping condition. This is considered by some teachers as emphasizing the differences rather than the similarities among students, but others have found it to be a positive experience for all. This activity is particularly recommended if it is found in the previous steps that the handicapped student is willing to discuss the handicapping condition.

Accept. Accept and respect the handicapped student as a person in his/her own right, a unique individual, as is every student in the class. It is important to recognize individuality among similarly handicapped students.

Avoid over-protection. Try not to be over-protective of the handicapped student, yet conscious of individual needs. It is essential that safety factors be considered, but handicapped students are no greater liability than "normal" students.

Adapt tasks. Most handicapped students can participate in all industrial education activities but some tasks may require adaptation. When this is necessary ask the student for suggestions, having lived with the handicap the student may have previously made adjustments for similar situations. If the teacher can provide a motivational learning environment the student can usually find a way to do the task.

Provide time. Time is a primary factor. Because of the nature of many handicapping conditions students usually require more time to complete a task. Try developing flexible time schedules that will allow each student the time needed. This may require cooperation from other teachers and administrators.

Encourage independence. Sometimes it will be easier to do a task for the handicapped students rather than teaching the students to do the task themselves or permitting the time needed. Try to avoid falling into this trap. Encourage independence by allowing each student time to develop individual skills.

Use resources. While materials and resources designed for use with the handicapped student in the mainstreamed classroom are limited more are appearing on the market. The use of such resources can save valuable teacher time.

Review classroom management. Experiment with various models of classroom organization that will free the teacher to serve those students who require the most help. Various combinations of large group and small group instruction and independent study can be effective.

Seek help. Be aware of and seek help from qualified consultants. Handicapping conditions call for the help of many professional groups, such as medical personnel and therapists and well as psychological, vocational and educational personnel. Each of these professionals can help the teacher be more effective in planning and implementing educational programs. Information from these consultants may mean the difference between success and failure for the handicapped student. (See biography resource helps in appendix)

Learn handicapping conditions. Become familiar with the student's handicapping condition by reading and conferencing with the family and school personnel. The most important information to obtain is how the handicapping condition affects this particular student. This includes the student's acceptance of the condition and the degree of functional ability. It is best to stress the student's abilities rather than the disability. Handicapped students are more like "normal" students than unlike them."

The Physically Handicapped Student

Physically handicapped people can usually be grouped into three classes: neurological, spinal cord injury, and amputations. A neurological handicap is a condition caused by incomplete development or injury to the central nervous system. Cerebral palsy, epilepsy and spina bifida are all neurological impairments.

Cerebral palsy, spinal cord injuries and amputations are the most common physical disabilites in public schools. Cerebral palsy is characterized by paralysis, weakness, incoordination and abnormal movement. There may also be language, speech, writing, vision and hearing disorders. Mental retardation is not a characteristic; there is little correlation between intelligence and physical impairment.

Redick, Sharon. "The Handicapped: Our Mission." AHEA, 1978.

People with spinal cord injuries may use a wheel chair or walk with or without crutches or braces. Because they are unable to sense pain below the point of injury, they must constantly shift position to insure proper blood flow. Sometimes they will need help in getting from one place to another, but wide hallways and lavatories as well as ramps and non-slip flooring aid these people in becoming self-sufficient.

Amputations can occur at birth or later in life due to accident or surgery. The loss of a limb, or part of it, is the most common amputation. Most amputees are fitted with either functional or cosmetic prostheses.

Any special needs depend upon the individual. Physical handicaps cover a wide range of disabilities; many are not detailed here. It is important to remember that there is no relationship between intelligence and physical disability. It is also wise to remember that speed is not always an indication of ability.

Specific modifications and adaptations depend upon the individual. If the student is unable to write, access to an electric typewriter should be provided or assignments and evaluations should be given orally. If the student is in a wheelchair or on crutches, school hallways, aisles, work stations and lavatories should be wide enough for easy access. Handrails and no-slip flooring should also be installed. Work surfaces should be adjusted to proper heights to allow maximum use. If the student is unable to grasp or hold onto a tool or device, special grips or straps should be obtained. The school district's occupational or physical therapist can assist in the process of adapting and modifying equipment and facilities.

Close contact with the student's special class teacher if he or she is in a special program can also benefit the student. Above all, the student should be treated with respect, honesty and understanding; not pity. The

physically handicapped realize that they must deal daily with their disability and resulting invonveniences. Do not attempt to ignore the handicap. Recognize the limitations it causes and assist the student in learning success. Physically handicapped students, as all others, must be given the right to succeed or fail.

The Mildly Mentally Handicapped Person

The personality characteristics of the mildly mentally handicapped do not differ basically from the personality of normal individuals. The differences are invariably the result of frustrations stemming from failure to meet requirements of school and society. These special people seek security, recognition and a sense of belonging, just as most of us do.

The mildly mentally handicapped person is within that group obtaining IQ scores between 50 and 80. This person can learn academic skills up to approximately the 6th. grade level by his or her late teens. He/she can usually achieve social and vocational skills to adequately support him or herself financially, but may need guidance and assistance when under social or economic stress. Social maturity will generally parallel his/her chronological age, while academic ability will most nearly approximate his or her mental age (present intellectual status as determined by a standard intelligence test). As a student, this person learns the same way regular students do, through experience.

Mildly mentally handicapped students need more time to learn. They may need more time to complete a task and put away their materials because of poor coordination or awkwardness. Generally, however, these students have better manual dexterity than mental performance.

Ability to evaluate their own efforts is limited in the mildly mentally

handicapped. They need to be given frequent, deserved praise in order to strengthen confidence in their ability to perform designated tasks. This will help to enhance their self image.

The mildly mentally handicapped student needs stimulation and assistance beyond the requirements of the regular student. All material used for teaching the mildly mentally handicapped must be at the student's level of interest and comprehension. Activities must be geared to the student's attention span and the materials must be within his or her ability to complete with a reasonable feeling of satisfaction.

The Visually Impaired Person

There are different sight characteristics that are defined in the term, "visual impairment". The physical condition may range from those with total loss of sight to varying degrees of reduced or restricted vision. The legally blind person has 20/200, or less, vision. This means that with maximum correction he or she can see less at 20 feet than can a person with normal vision at 200 feet.

Apart from blindness, a student may have three basic types of impairments:

VISUAL ACUITY may be reduced. The student may be unable to see clearly and may need to get very close to an object in order to see. Some may only see things at best in a blur and be unable to see detail at any distance.

The FIELD OF VISION may be restricted. In this condition the eye can only see a very small, narrow part of the whole picture, with no view of the wider area.

COLOR VISION may be impaired. The student may be unable to distinguish certain colors.

The visually impaired person will need assistance with mobility. He or she will have to be made familiar with actual objects and their location within the shop, lab or workshop. This person may need modifications of the printed material used in the classroom and additional time to complete routine tasks.

The Hearing Impaired Person

People who have some hearing and speech abilities are hard-of-hearing. A loss of 20 decibels or fewer in the better ear is a slight hearing loss, while those with a loss of 20-40 decibels are considered mild. A loss of 40-60 decibels in the speech frequencies is moderate and a severe hearing loss is in the 60-80 decibel range. A person who has a loss greater than 80 in his or her better ear and cannot hear and/or understand speech is considered DEAF. This person must sometimes communicate in ways other than speech.

Speaking and lipreading are inadequate for the majority of deaf people because 40-60% of the sounds in the English language look just like some other sound on the lips.

Total communication is the combination of all methods used by the deaf and hearing-impaired such as speech, lipreading, fingerspelling, sign language, gestures, facial expressions and writing.

Confusion and the feeling of isolation can often plague the hearing impaired. They need help in learning our complicated social and instructional systems as well as in developing strong, positive self images. It must be remembered that the language of the hearing impaired person is not an indication of his or her intelligence and that a wide range of language abilities exists among hearing-disabled individuals.

It is important to know when the person became hearing impaired. If the loss occurred before the age of five, speech and language must be taught rather than learned naturally; this speech is likely to be mechanical and difficult to understand. If the person has acquired the loss later in life, the reaction to accepting or rejecting the necessary life changes can also require special attention.

The Emotionally Handicapped Person

The emotionally handicapped person can be any size, shape, color or heritage. The characteristics of an emotional handicap vary widely from person to person. However, there are some behaviors which tend to appear more frequently:

- An abnormal concern for his or her health.
- Immature and inappropriate behavior
- Failure to relate well to classmates
- Lack of self-confidence
- Obsession with an idea or interest
- Insensitivity to individual differences
- Exhibiting anger and hostility when he or she does not understand instructions.

The emotionally handicapped student needs a calm, orderly environment and consistent discipline. It is important to prevent this student from becoming frustrated as much as possible. Distractions such as blinking lights repetitious noise, unpleasant odors, and a hot stuffy room tend to increase his or her frustration. This student will be most comfortable in a class where the expectations, rewards and consequences for the class are fair, predictable and consistent -- not only for the emotionally handicapped, but for every student in the class.

Stowe, Sydney. "The Handicapped Student", Indiana Curriculum Materials Center. Indiana University, Bloomington, In, 1980.

Accessibility

"Accessibility is the combination of various elements of the built environment which allows entrance to, egress from, and use of buildings and facilities by the public." In an attempt to better understand this term or concept let us take a look at some of the key elements of its definition. First the term public, the term public refers to all users of buildings and facilities. The public includes all "normal" persons and those with physical limitations. The phrase physical limitations may or may not be synonymous with the term handicapped. There are many individuals who would admit to having a physical limitation, but would not consider themselves to be handicapped.

In the preceeding pages many different types of handicaps were discussed. Some of them included physical handicaps. These handicaps or disabilities can be classified as follows: Non-ambulatory, semi-ambulatory, problems of co-ordination, impaired sight or hearing, and those problems caused by the aging process. According to this classification, if you use eye glasses, have a bad knee, or you just can not do things the way you used to you are handicapped and a list of such examples would be too numerous to mention. For this reason many of our assumptions or preconceived ideas of what a handicap is or who the handicapped are is of little value.

Glickman, D. "Accessibility Standards" , State of Illnois, Capital Development Board,1978.

Therefore, when investigating problems of accessibility an individuals physical capabilities and limitations of interacting with the built environment should be analyzed.

The Built environment includes those conditions, circumstances and influences surrounding, and affecting the development and/or function of an individual. In many instances these are referred to as barriers. There are many different types of barriers. The most common barriers are those found in buildings and facilities. These include: walks, building entrances, rest rooms, equipment, and other objects affecting the development and function of a human. However, some of the most difficult barriers to be overcome are not physical in nature, but are social and psychological. For it is our perception of a persons physical limitations that is often the greatest barrier. It is these barriers that hinder improvements in the built and social environment.

When the person with physical limitations comes in contact with the built environment there must be an interface between that individual and the built environment. To improve this interface and thus make the built environment more accessible three things can occur: (1) modification of the built environment, (2) adaptation or modification of the individual, or (3) a combination of the two.

The success of these modifications will in many instances depend upon the understanding of the scope and degree of the individuals physical limitations and capabilities. This can be effectively accomplished by an analysis of the individuals inter-

face with the built environment.

The following six elements can be used as a model to guide the analysis process.

(1) The distances the individual must transport (move) him/herself or material (objects); the distances (space) the individual must transport him/herself or material through.

(2) The amount of force the individual needs to transport him/herself or material.

(3) The time frame in which the individual needs to perform an identified task.

(4) The type and quality of body movements that are capable of being used to perform an identified task.

(5) The type and quality of human senses utilized or required to perform an identified task.

(6) The type and quality of the mental functions necessary to perform an identified task.

Modifications stemming from an analysis of the interface between the built environment and an individual with physical limitations should improve that persons accessibility to the educational environment.

This in turn will open new vistas here before unattainable.

STRATEGIES FOR RELATING VOCATIONAL EDUCATION TO SPECIAL NEEDS STUDENTS

POOR SELF CONCEPT

Suggestions:

- Acknowledge the student as a person--as a unique individual.
- TLC--Give the student some extra attention and tender loving care.
- Emphasize anything that can be seen as a positive strength in the student's life.
- Emphasize contributions that the student has made.
- Encourage interpersonal communications.
- Create tasks that will meet with positive reinforcement.

LIMITED MOBILITY

Suggestions:

- Arrange field trips to acquaint the student with the community.
- Arrange simulation games that will familiarize the student with aspects of the community.
- Bring in guest speakers so the student will become acquainted with community members.
- Allow "hands" on activities wherever possible.

CHRONIC ILLNESS SENSORY-MOTOR DEFECTS

Suggestions:

- Encourage the student to set realistic goals within the range of personal capabilities and promote creativity and self-direction.
- Utilize vocational counseling and placement services.
- Begin activities to increase the awareness of teachers, peers, and employers concerning potential problems that the handicapped individual may have.

VISUAL PROBLEMS

Suggestions:

- Provide supplementary books with larger than ordinary type.
- Use magnifiers, talking books, records, etc., which are available to the legally blind.
- Pair with a student who can assist by tape-recording textbook information which cannot be obtained in braille or large type.
- Read aloud to the handicapped youngster.
- If the student is distracted by extraneous visual stimuli, closing one's eyes and listening is one compensatory method.
- Use the overhead projector, since the image projected is often larger than that which would be visible on a blackboard.
- Be conscious of the visual clarity of duplicated materials.
- Transfer work onto auditory materials to reduce the youngster's anxiety.
- Make the best use of residual vision.
- Provide adequate room light (add light if needed).
- Provide a separate, quiet room when possible or allow student some time in a quiet place if needed.
- Allow/encourage student to type tests and assignments.
- Provide a tactile map of classroom and/or lab layout.
- Recommend an optometric examination if uncertain about problem.

Equipment:

- Special control dials with the actual, rather than visual markings; brailled controls; use braille tape or raised marks (e.g. dots of glue) which would achieve similar results.

VISUAL PROBLEMS (cont.)

Equipment (cont.):

- Auditory rather than visual warning signals.
- Guard plates on power equipment (where feasible).
- Specially designed measuring tools are available and can be considered for visually impaired students on an individual basis (e.g. audible multimeter, audible electronic level, brailled ruler, micrometers modified for fingernail readings).

AUDITORY PROBLEMS

Suggestions:

- Try to limit the amount of external noise which can affect the learning situation.
- Place student in a work area with a minimum of noise and distractions.
- Make good use of hearing abilities by placing student in close proximity to the sound/speaker.
- Since the student may lipread be sure to face the person when you speak, and do not speak until you have the student's attention.
- Try to speak clearly and precisely, yet avoid exaggerated lip movement.
- Pair the student with another student to review lecture notes.
- Provide the student with tapes and headphones to block out extraneous noise.
- Provide good room light.
- Assist student in discovering best or most successful learning style.
- Remember language is not a measure of intelligence.

Equipment:

- Install a red light next to the switch indicating when the machine is in operation.
- Connect bells to a light that turns on when the bells ring (typewriter bells, class bells, timers, fire alarms, emergency stop procedures).

MENTALLY RETARDED

Suggestions:

- Use special textbooks and materials which are adapted for the slow learner.
- Modify textbooks being used.
- Give very systematic instruction to the student, proceeding one step at a time.
- Do Task Analysis--Break down each process of a task into its component parts. Define the requirements for mastery of each task, and evaluate mastery before moving on to the next stage. This will eliminate the student's feeling of being overwhelmed by the task.
- Allow as much time as needed to finish the task. If the time spent seems unduly long you may need to break the task down into smaller components.
- Encourage students, wherever possible, so they do not become frustrated with the task.
- Give positive reinforcement after successful completion of the task.

MENTALLY RETARDED (cont.)

Suggestions (cont.):

- Present material in an oral rather than written form to eliminate reading problems.
- Repeat material to encourage understanding of the assignments.
- Try to develop feelings of accomplishment in the student as each unit of study is completed.
- Emphasize the use of programmed material and video tape demonstrations to allow the repetition needed by the student without taxing the teachers.
- Do not begin a new assignment or project until the old one is mastered or completed.
- Assist student in discovering his or her interests and goals.

SERIOUSLY EMOTIONALLY DISTURBED

Suggestions:

- Maintain a supportive social climate in the classroom and encourage peers to support the student.
- Be a model of support and respect for the peer group to imitate.
- Consistently point out and clarify the relationship between the student's behavior and consequences. Do this in a personal interaction with the student.
- Provide opportunities for success; maximize success, minimize failure.
- Provide peer tutor to work with and empathize with student.
- Remove distractions when feasible.
- Warn of difficult situations beforehand.
- Ask instead of command.
- Avoid surprises or sudden changes in procedure.

ORTHOPEDICALLY HANDICAPPED

Suggestions:

- If a student has limited use of upper limbs, pair with another student who can make carbon copies of lecture notes.
- Provide for easy access to laboratories.
- Have the student prepare work on transparencies which can be used with an overhead projector. This provides an alternative to tedious chalkboard work.
- Provide access for wheelchairs, canes and other devices.
- Allow time for rest.
- Provide alternative testing techniques if needed.

Equipment:

- Bat.wing faucets that require minimal manual dexterity for manipulation.
- Power tools should have guard devices and machine switches may need to be moved for easier accessibility.
- All semi-stationary equipment should be put on variable height bases.
- Some hand tools can have extra large handles for easy use by a student with weak hands.

SPEECH IMPAIRED

Suggestions:

- Never ridicule or call attention to the student's speech problem.
- Reduce pressures which the person might be experiencing in the classroom.
- Elicit oral expression in a one-to-one setting.
- Provide a good model for the student to listen to and to imitate.
- Provide a comfortable atmosphere in which the student can discuss topics comfortably and feel relaxed.
- Pay careful attention when the person is speaking.
- Provide opportunities for success in non-speech related activities to compensate for problems in speech related situations.
- Refer student to speech therapist.

GUIDELINES FOR THE EDUCATOR PREPARING STUDENTS TO ENTER THE WORLD OF WORK

Numerous studies have consistently established the importance of work in the life of every individual. Satisfaction in one's working career greatly effects every other aspect of a person's life.

The occupational content, as well as the academic portion of the curriculum, should be dependent on the "special" student's specific personal, social, and educational needs. These needs should be thoroughly diagnosed and instructional activities designed to alleviate the effects of the disadvantaged and/or handicapping condition that is preventing the student from succeeding in the regular occupational program.

Several key points to be considered in planning an occupational program for this target group are as follows:

- Train for the acquisition of basic employability characteristics.
- Provide the academic teachers with information about the needs in academic skills as they relate to a specific vocational training area.
- Train at a level of competency which matches the youth's potential.
- Train in an area where the student can master a skill which is saleable.
- Where possible, combine training in the school with on-the-job training.
- Be prepared to provide for shorter instructional periods and for longer total time for course completion.
- Be prepared to repeat segments of instruction, particularly for those students who possess learning handicaps.
- Make provision for individualized instruction.
- Utilize demonstration lessons and manipulative endeavor in the case of handicapped students with learning disabilities.
- Provide for frequent reinforcements of student's progress in learning situations.
- Make certain to treat all aspects of a learning situation; never take granted the occurrence of incidental learning.
- Place great emphasis upon safety procedures and caution in the use of tools and equipment.
- Ensure an emotionally stable and predictable training environment.
- Make copious use of the prevocational evaluation and the vocational counselor's support.

Hints to Success (continued)

- Keep in mind that daily assignments involving specific meaningful tasks are the most effective.
- Utilize manual activities.
- Recognize that it is very important that the student like and have confidence in his teacher.
- Take care to provide reading material of easy vocabulary and with sentence structure and content suited to the student's age level, interests, and experience.
- Remember that the students have less cultural opportunity at home, less educated parents, less reading material at home and, in general, a poorer background for learning.
- Remember that school is particularly dull and unexciting to the disadvantaged student compared to the out-of-school activities that make up his life.
- Be content to attempt less and make sure that better learning takes place from that which is attempted.
- Be patient and encouraging in word and in manner.
- Find out where the student is and start with that. Develop an open system of instruction.
- Promote a realization of self-worth.
- Attempt to gain the student's confidence.
- Provide a success oriented program.
- Include parents in the program.
- Explain to the student in a nonauthoritarian manner that you are there to help him achieve success.
- Maintain an "open door" office policy but do not pressure students to visit (encouragement but not pressure).
- Help the student to keep up with the class.
- Be alert for any opportunity to praise him or his work in order to help build his self-image.
- Maintain an awareness of the importance of eye-contact and body language which might underscore what you are saying.

Hints to Success (continued)

- Assign students to the job that they want to work on.
- Assign a minimum of book work.
- Keep in mind that student goals are to be considered in the long range planning of the course.
- Keep in mind job placement in the community as a factor in motivating the disadvantaged student.
- Use competition on the completion of contract assignments.
- See the students as individuals and make an effort to understand their personal problems.
- Work at building respect between student and teacher. Talk at a level which the students can understand.
- Know how to criticize constructively.
- Take an active part with students; and get involved. Utilize teaching methods that require demonstrations.
- Encourage students to challenge what's taught; encourage them to learn; instill responsibility.
- Demonstrate to the student where he or she will fit into a particular job. Have people from industry come in and relate actual experiences.
- Make use of mini-course teaching.
- Make an effort to meet the students' needs.
- Be flexible; show trust in the student and be diversified.
- Use language that the student can understand and can employ to express himself.
- Take advantage of opportunities to talk informally with students outside of the classroom about matters other than schoolwork.
- Get out from behind the desk when talking with the student.
- Be friendly but not familiar.
- Listen intently but patiently.

Hints to Success (continued)

- Arrange field trips into the business and industrial community to give youngsters a chance to see the work areas, and encourage personal interviews by the students concerning job duties, feeling, strong points and weak points about the work they are viewing.
- Set up ground rules and guidelines which will define behavioral limits and penalties for violation and adhere to these principles and rules.
- Allow for dissenting opinions.
- Tell the students exactly what is expected of them and how they will be able to meet these responsibilities in detail. Let them know where they stand regarding their responsibility.
- Tell the importance of the topic and why it is being discussed.
- Respect the confidence of students.
- Establish and announce standards of acceptable behavior and follow through consistently to maintain these standards.
- Be innovative and present unique, startling ways of conveying subject matter. Be different!
- Use tape recorders, radio and TV and let the student use them.
- Use a variety of classroom aides in a comfortable surrounding.
- Show the student the purpose of each assignment and relate it to something that is important to him.
- Plan repetition for reinforcement. Use a variety of methods to prevent boredom.
- Explain that discipline is important and use peer group monitors.
- Capitalize on getting students to give you their ideas and encourage participation at all times.
- Relate instruction to students life and culture when possible.
- Keep presenting the information in small steps, and be sure that student has achieved an acceptable degree of success before sending him on to another step.
- Show that you are at ease in the classroom. Avoid sterotyped procedures. Talk freely and openly.
- Be adaptable and operate without enforced structure. Maintain relaxed structure, but keep it reinforced to maintain necessary discipline and order.
- Have and show your sense of humor.

Hints to Success (continued)

- Always acknowledge all student responses whether correct or incorrect. Be careful not to use comments that "reject" such as, "How could you say that?"
- Provide feedback that is immediate and specific to the students response.
- Use active rather than passive words.
- Use motion, color, contrast, variety and personal reference.
- Let students move about as freely as the physical environment will allow.
- Treat a student as a person rather than as a number.
- Allow the student to proceed at his own pace - don't rush him.
- Praise the student often and sincerely.
- Respect the student's opinion and even though you don't agree with him allow him to express his thoughts.
- Create a comfortable environment with attention to relaxed atmosphere, furniture, lighting, heat and air.
- Return all assignments promptly and communicate something on each assignment as a personal message to the student such as praise, or encouragement, etc.
- Treat all efforts with respect.
- Judge students objectively; don't play favorites.
- Deal firmly with situations when necessary.
- Show sincerity, respect and patience.
- Offer as much work or laboratory related experiences as possible.
- Encourage students to express their own opinions.
- Use guest speakers and people that the student can relate to as "motivators."
- Drive home a point dramatically by being dramatic and colorful with the presentation of materials.
- Be prompt, orderly, systematic and thorough.
- Use clarity, enunciate well, and use good pronunciation.
- Pay attention to the slow students or those who cannot keep up. Commend all students for good work. Give praise and encouragement to the student and show a real interest in his accomplishments and progress.

Practices to Avoid

- Do not criticize a student in the presence of his peers.
- Do not preach. (In fact, talk as little as possible.)
- Do not be condescending or patronizing.
- Do not judge by middle-class standards.
- Do not think of things in black-and-white terms if you want the student to be able to see more than one side to a question.
- Do not be authoritarian.
- Do not subject the students to changes without advance notice; they are insecure enough already.
- Do not expect consistency in progress toward more acceptable standard social behavior. There will be many retrogressions precipitated by environmental influences.
- Do not be afraid to admit your own mistakes.
- Do not expect to reach every one of your students.
- Do not let your own problems get in the way of good discipline.
- Do not back yourself or a child in a corner. Always leave a way out.
- Do not take slight irregularities of conduct too seriously.
- Do not monopolize one type of classroom procedure.
- Do not give the student meaningless tasks from which little progress in learning can be expected.
- Do not be sarcastic or critical. Praise the student for his accomplishments.
- Do not be irritated by symptoms of lack of interest, tension, discouragement or mild disorder which diminish as the students are given learning activities that are appropriate to their capacities, abilities and interests.
- Do not attach permanent importance to initial impressions of student hostility and/or indifference which may be a student "front" for mistrustfulness of self-uncertainty.
- Do not, in conversations, correct student's speech or manner of speech. Speak in words that students can understand.
- Do not impose your individual values on the students.

Practices to Avoid (continued)

- Do not measure achievement in terms of grades only and do not compare to others.
- Do not use phrases such as:

  "You won't understand this, but . . ."

  "You should have known that . . ."

  "Half of you won't be here for long . . ."
- Never argue with a student in class.
- Do not threaten students.
- Do not use obscure meanings or meanings that the student cannot relate to.
- Never refuse to allow a student to say something that he feels is important.
- Do not use words which reflect hostility, sharpness, suspicion, apathy or disrespect.
- Do not do things that you do not want the student to do. Use integrity and honesty. Be a good model.
- Do not be overly familiar, rude, sarcastic or unfriendly.

VOCATIONAL CURRICULUM EVALUATION

Criteria for Evaluating Vocational Content

NOTE: If the following questions can be answered in the positive, the vocational content should be meeting the students' needs.

1. Are you relating subject matter to personal experience?
2. Is the content helping the students to become more aware of the world around them and of their relationship to it?
3. Does the content indicate that the students are gaining in feelings of self-confidence and self-worth?
4. Is the content arousing the students' motivation, so that they become personally involved and interested in continuing learning outside the classroom?
5. Does the content include new and review material?
6. Are the students being given all possible opportunities for self-expression?
7. Are you listening in on their wave length?
8. Are you remembering not to talk too much?
9. Are the students more aware of career opportunities?
10. Is the content helping the students to develop more realistic concepts of their responsibilities as prospective employees?
11. Are the students becoming less fearful of failure on a job?
12. Is the vocational curriculum improving academic skills?

Hints for Successful Evaluation

- Use a variety of testing measures.
- Provide for informal as well as formal assessment.
- Provide immediate evaluation of each task.
- Use oral tests, pictured tests, tape recorded tests.
- Stay away from closely timed "speed" testing.
- Use daily, continuous, ongoing evaluation.
- Provide review check lists.
- Use some class time for a thorough review of each task
- Repeat evaluations if necessary.
- Allow remedial work and evaluation.
- Keep the student aware of his progress - motivate him/her through evaluation.
- Prepare formal evaluation that recognizes the student's limited vocabulary in answering.
- Evaluate only those curriculum objectives that were defined in class work.
- Relate evaluation with routine coursework - remove the "threat".
- Evaluation should be individual.

Vocational Education Curriculum
for
Handicapped Students

Purpose:

Children are the future of any society. The purpose of this program was to guide Educable Mentally Handicapped, Moderately Mentally Handicapped, and Multiple Handicapped students 12 to 18 years of age to become self-sufficient adults through practical experiences in everyday life. These skills related to the cultural, social, economic and psychological aspects of living. A vocational program during the early years of development helped formulate these skills.

Through active participation, "hands on experiences", and individual/group participation, students transferred this information to their home environment. Increased consumer knowledge and budgeting experiences helped to achieve this goal. Early vocational training may lead to employment security which will help these students to become productive adults in our society. By showing them ways to become self-sufficient adults through practical experiences in everyday life, students began to build positive self concepts. Through this new self awareness, they were then able to reach out for others to attain knowledge.

Procedure:

The vocational education class was divided into two semesters, eighteen weeks each. The first semester included nine weeks of foods/nutrition and nine weeks of sewing/clothing construction. The second semester included nine weeks of basic hand tool operation/measurement and nine weeks ofmmachine tool operation/manufacturing. Each semester served a new class of fifteen students including E.M.H., M.H., and M.M.H. Vocational education was conducted for ½ day, every day each week. This time allotment was necessary for presentations and discussion, demonstrations, and actual participation by students. Whenever possible, academics were infused into the vocational program. It was discovered that the academic and

vocational curriculum were not really separate but overlapped and enhanced the learning experience of each student. The class was directed by two regular special education instructors and Ball State University undergraduate students in Home Economics or Industrial Education in a team teaching situation. The Special Education teacher learned the basic concepts of vocational education and the vocational teacher learned more about the handicapped student. Together they prepared the special needs student for a future vocation.

The goals and objectives of each curriculum and the necessary equipment to reach those appear on the next few pages.

INDUSTRIAL EDUCATION

LONG TERM GOALS

1. Improvement of finger dexterity and manipulative abilities.
2. Improvement of visual and tactile discrimination.
3. Improvement of eye-hand coordination.
4. Improvement of memory.
5. Improvement of physical and mental stamina.
6. Development of intellectual skills - IED discipline encourages reading, math - all of our thinking processes!
7. Improvement of social relationships and abilities. (Use an assembly line!)
8. Improvement in timing.
9. Development of prospective career opportunity skills - abilities surface quickly!

SHORT TERM GOALS

1. Stress pride in accomplishment of a task.
2. Acceptance and completion of responsibilites.
3. Coordination of mind and body to accomplish IED task.
4. Safety and proper use of equipment.
5. Learn basic construction, masonry, electrical and graphic arts skills needed for home maintenance.

FOODS AND NUTRITION

LONG TERM GOALS

1. Ability to become self-sufficient in todays society.
2. Develop good health habits.
3. Transfer to home environment - improving nutritional standards at home.
4. Employment possibilities.
5. Budgeting and consumer knowledge.
6. Attention to safety - use of equipment.
7. Building upon experiences.
8. Nutritional knowledge of food.
9. Awareness of roles and expectations.
10. Developing good working habits.

SHORT TERM OBJECTIVES

1. Stress pride in accomplishment.
2. Acceptance and completion of responsibility.
3. Proper foods in diet.
4. Nutritional food value.
5. Budgeting - planning meal, buying food, cooking and eating products.
6. Seasonal foods as good buy.
7. Safety of equipment
8. Regular eating habit - basic food groups.
9. Table manners.

CLOTHING AND CONSTRUCTION

LONG TERM GOALS

1. Self-sufficient in todays society.
2. Transfer to home environment.
3. Employment possibilities
4. Proper grooming.
5. Budgeting - buy, use and care of fabrics and equipment
   Consumer Knowledge
6. Identification of fabric.
7. Attention to safety.
8. Building upon experiences
9. Awareness of roles and expectations.
10. Developing good working habits.

SHORT TERM GOALS

1. Stress pride in accomplishment.
2. Acceptance and completion of responsibilities.
3. Actual experience - buying and construction, taking advantage of sales.
4. Mending - basic sewing skills.
5. Seasonal clothes - proper dress - "why".
6. Coordination of colors and current styles and appropriate dress.
7. Buying within a budget.
8. Safety and proper use of sewing machine and equipment.

COOKING EQUIPMENT

1. Two electric mixers
2. One set pots and pans
3. One refrigerator
4. One dining room set
5. Cooking utensils (spatula, wooden spoons, scrapper, measuring spoons, measuring cups, colander, grater, pastry blender, cooling rack, blending fork, sifter, peeler, funnel, rolling pin, vegetable brush)
6. Casserole
7. Cookie sheet
8. One set Melmac dishes
9. Serving bowls
10. One set of glasses
11. One set of silverware
12. One set of knives
13. One set of baking pans
14. One toaster
15. One can opener
16. Cookie press
17. Ring mold
18. Mixing bowls
19. Double boiler
20. Tray
21. Ladle
22. Muffin tin
23. Refrigerator dishes
24. Wire whisk
25. Bus transportation for three trips to the grocery store
26. Text books and work books
27. Paper (ditto, tag board, construction)

SEWING EQUIPMENT

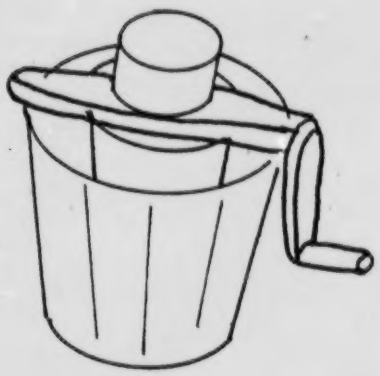
1. Two sewing machines - portable
2. Two cutting tables or cutting boards
3. Four pair scissors
4. Three boxes straight pins
5. Two packages sewing needles
6. Two extra bobbins
7. One package tracing paper
8. One tracer wheel
9. One iron
10. One ironing board
11. Tape measures (3)
12. One can machine oil
13. Fabric
14. Seam binding tape
15. Buttons
16. Mending patches

INDUSTRIAL EDUCATION EQUIPMENT

1. Goggles
2. C-clamps
3. Sanding blocks
4. miter box
5. Electric sander
6. Scroll saw
7. Electric drill
8. sandpaper
9. Vise
10. Screw driver sets
11. Hammers
12. Wrench set
13. Back saw
14. Tape measure
15. Surforms
16. Adjustable wrench
17. Pliers - set 3

SNL ACTIVITY # 1

Learning Center: Ice Cream Freezer



Objectives:

1. To introduce the learner to the basic concepts of material conversion: separation changes, contour changes, internal changes, and addition changes.
2. To make home made ice cream.

Related Concepts:

1. Measurement
2. Food preparation
3. Temperature
4. Converting energy and materials

Proposed Evaluation:

The learner following the discussion of material conversion, using the process of making ice cream for examples of each of the material conversion concepts, should be able to transfer these concepts to other examples of material conversion.

Logistic Decisions:

Time: 2-3 hours

Space: Classroom with large work surface (table).

Materials:
a. ice
b. salt
c. milk
d. evaporated milk
e. corn syrup
f. instant pudding
g. flavoring
h. eggs

Equipment:
Ice cream freezer

Personnel Development:
Large group

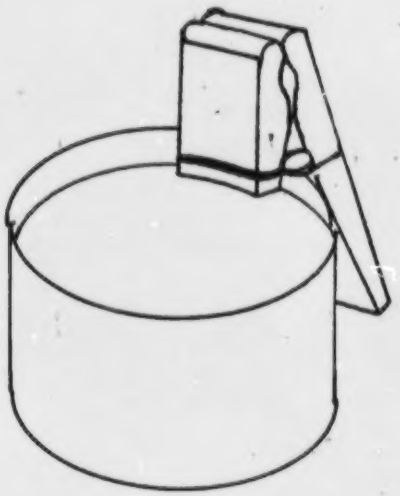
Major Tasks and Related Content:

1. Tasks
   a. Mixing
   b. Freezing
   c. Measuring
   d. Stirring
   e. Cranking
   f. Clean-up

2. Related Content
   a. Separation changes
   b. Addition changes
   c. Contour changes
   d. Internal changes
   e. Material transportation and conversion
   f. Energy and information transmission and conversion

SNL ACTIVITY # 2

Learning Center: Recipe Holder



Objectives:

1. To develop an understanding of casting and other contour change processes.

2. To develop an awareness of and skill in using some of the tools and processes used in home maintenance activities.

3. To make a recipe holder.

Related Concepts:

1. Casting concrete or other materials.
2. Size, weight, and volume.
3. Types of or selection of materials.

Proposed Evaluation:

1. The learner given a blueprint, clothespin, spray can lid, water, measuring devices, and plaster will be able to mix and assemble the materials according to the blueprint, to make a recipe holder capable of holding a recipe, 3x5 or 4x6 card.

2. The learner, given the discussion on contour and casting processes, will be able to list some other contour or casting processes.

Logistic Decisions:

Time: Three one-hour sessions.
Space: Classroom or laboratory.
Materials:
1. Plaster
2. Plastic or metal spray can lids
3. Clothespins
4. Water
5. Paint
6. Sealer

Equipment:

1. Mixing bowls
2. Putty knives
3. Spoons
4. Measuring devices
5. Paint brushes

Major Tasks and Related Content:

1. Tasks

a. mixing
b. casting
c. assembly of clothespin
d. painting

2. Related Content

a. Casting concrete
b. Plastering a wall
c. Painting plaster walls
d. curing processes

SNL ACTIVITY # 3

Learning Center: Schedules and Maps
(Reading and Making)

Objectives:

1. To better understand the area in which the learner lives.
2. To better understand the different modes of transportation found in the area in which the learner lives.
3. To be able to find different locations on a map.
4. To be able to plan routes and methods of getting from one location to another.

Related Concepts:

1. community services
2. transportation
3. communication
4. planning

Proposed Evaluation:

1. The learner, given a map of his/her area, will be able to locate things that are important to him/her.
2. The learner, given pencil and paper, will be able to draw a map showing the route from his/her school to his/her home.
3. The learner, given a bus schedule and a map, will be able to identify what time a bus should be at a given location.

Logistic Decisions:

Time: 30 minute intervals as needed.
Space: Classroom, bus station, train station, or other transportation center.
Materials:

1. Local area maps
2. City maps
3. State maps
4. National maps
5. Transportation schedules

Equipment:
None

Personnel Development:

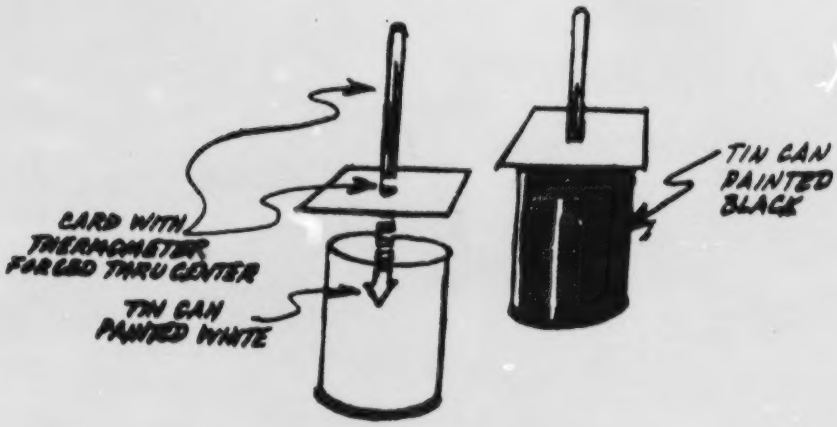
Individual, small groups, or large group.

Major Tasks and Related Content:

1. Map reading
2. Map drawing
   a. finger dexterity
   b. visual discrimination
   c. memory
   d. eye-hand coordination
3. Schedule reading
4. Schedule planning

SNL Activity # 4

Learning Center: Temperature Control



Objectives:

1. Improve finger dexterity
2. Develop visual and tactile discrimination
3. Increase physical and mental stamina
4. Encourage development of intellectual skills/knowledge of colors
5. Engage inter-personal interests

Related Concepts:

1. Color discrimination
2. Language skills
3. Arithmetic skills
4. Science skills

Proposed Evaluation:

Successful completion and reading of the "Temperature Control" activity.

Logistic Decisions:

Time: 1-2 hours

Space: large work table (room to gather class around)

Materials:

Tin Cans	Paint (black & white-spray)
2 Lab Thermometers	Heat lamp
Light carboard	2 candles
	Rubber bands

Personnel Development: Group project

Major Tasks and Related Content:

1. Paint one can white and the other black. Allow to dry.
2. Suspend thermometers in cans, through holes in file card; bulb must not touch can.
3. Direct heat lamps at cans so that the rays shine directly on the cans but not on the thermometers.
4. Record the different temperatures.
5. Touch the cans and note the difference in temperatures.
6. After a brief cooling-off period, light two candles and attach to sides of cans.
7. Direct heat lamp at the cans again.
8. Observe what happens to the candles after a short period of time.

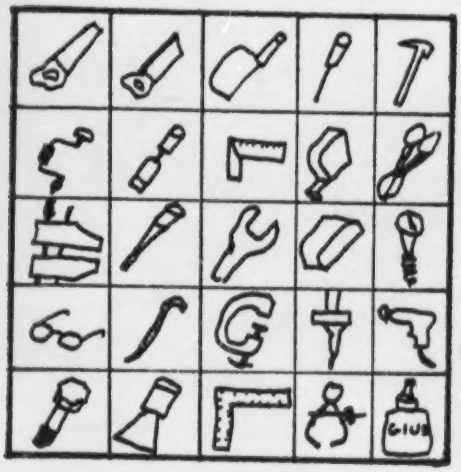
The amount of radiant energy different materials absorb or reflect varies greatly according to their surface color.

A. If intermediate colors (yellow, pink, red, etc.) instead of white were used, how do you suppose the temperatures would be affected?
B. What colors should be used for propellant tanks?
C. What other reasons can you think of for using other paint patterns of color?

Bibliography: NASA Educational Resources, NASA FACTS - Activity Sheets.- Science Series, Public Information Office, August, 1967.

SNL Activity # 5

Learning Center: Tool ID Bingo



Objectives:

1. To improve the learner's ability to visually identify common hand tools used for home maintenance and improvements.

2. To improve the learner's ability to associate common tools with the processes performed by them.

Related Concepts:

1. Social interaction
2. Improved finger dexterity and manipulative abilities
3. Related home maintenance activities

Proposed Evaluation:

1. The learner shown a series of hand tools will visually match those hand tools to the pictures shown on the tool identification Bingo cards.
2. The student given a description of the process/es performed by a given hand tool will be able to match the process to the tool pictured on the tool identification Bingo cards.

Logistic Decisions:

1. Time: 15 - 30 minutes
2. Space: Classroom or laboratory
3. Materials: Game cards and bottle caps for markers
4. Equipment: Tools or pictures of home maintenance tools included as part of the game
5. Personnel Development (grouping): Learners can play game in small groups or as individuals

Major Tasks and Related Content:

Tasks:

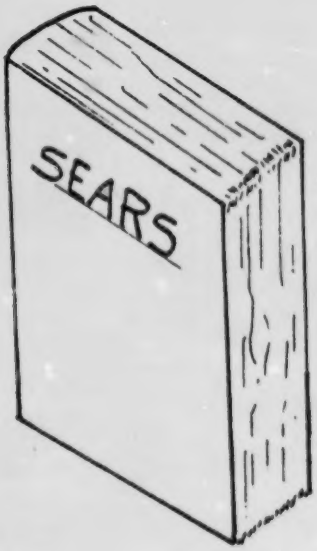
1. Finger dexterity
2. Visual and tactile discrimination
3. Improved memory
4. Mental stamina

Content:

1. Tool functions or processes
2. Home maintenance activities

SNL ACTIVITY # 6

Learning Center: Catalogs (Reading and Ordering From)



Objectives:

1. To be able to find items in a catalog.
2. To be able to order an item from a catalog.
3. To be able to do comparative shopping.

Related Concepts:

1. weights
2. sizes
3. color, style, and function
4. buying and caring for clothing
5. achieving independence

Proposed Evaluation:

1. The class, given a quantity of money and a variety of catalogs, should be able to do some comparative shopping and purchase an item from a catalog.
2. The class, upon receiving their ordered item, will be able to analyze the item to see if it has all of the characteristics of the catalog description, and if it is what they had anticipated.

Logistic Decisions:

Time: 20-30 minute sessions as needed.
Space: Classroom or catalog department of a local store.

Materials:

1. catalogs
2. catalog order blanks
3. pencils

Equipment:

None

Personnel Development (Grouping)

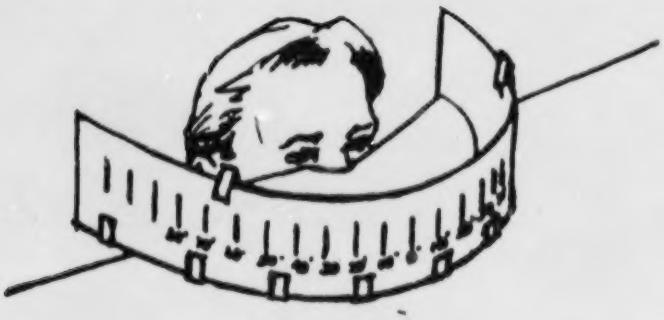
1. individual
2. small group
3. large group

Major Tasks and Related Content:

1. reading
2. writing
3. selecting
4. buying
5. maintaining purchased item

SNL Activity # 7

Learning Center: Field of Vision



Objectives:

1. Improve fine muscle control
2. Stimulate memory
3. Increase visual teaching ability
4. Develop eye-hand coordination

Related Concepts:

1. Measurement
2. Arithmetic skills/science skills
3. Language skills
4. Design skills

Proposed Evaluation:

Successful design and reading of the "Field of Vision" activity

Logistic Decisions:

Time: 2-3 hours
Space: large work surfaces
Materials:

- Strip of carboard 45" by 4"
- Metal or wire clips
- Felt tip marker or ball point
- 3/4" wooden base cut in ½ circle=18" radius
- Black paint
- Ruler
- Thumb tacks

Personnel Development: individual project

Major Tasks and Related Content:

1. Prepare a scale of degrees on the cardboard as shown in the diagram. Paint one side black.
2. Thumb tack to wooden base so scale is facing out.
3. Identify by use of a metal marker or piece of tape.
4. Fashion two more markers which can be moved along top edge of cardboard.
5. Person being tested should sit so that nose is in groove on baseboard - should look directly at 0 marker while markers are moved along scale until they just disappear from view. (Do not look at moving markers, only 0 markers).
6. Read number of degrees as field of view for each eye. Prepare chart of your group.

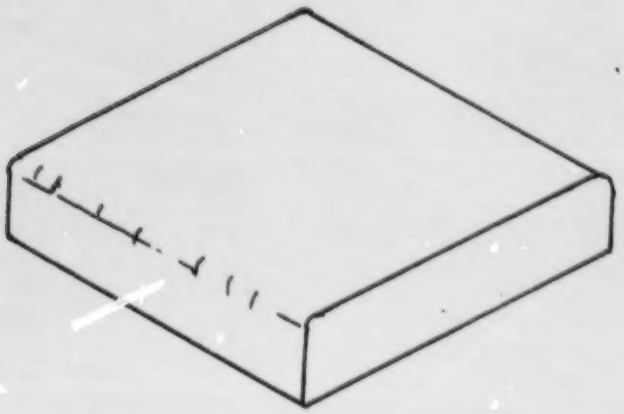
Location and operation of equipment is partially dependent upon field of vision.

A. Are both eyes usually the same?
B. What effect does wearing glasses have?
C. At what point in your field of vision can you detect the slightest movement?
D. Relate careers that might be dependent upon field of vision.

Bibliography: NASA Educational Resources, NASA FACTS - Activity Sheets - Science Series, Public Information Office, August, 1967.

SNL Activity # 8

Learning Center: Cutting Board (make)



Objectives:

1. To improve finger dexterity and manipulative abilities through the use of various hand tools and finishing activities.
2. To improve physical stamina through the use of various hand tools and finishing activities.
3. To improve hand-eye coordination through the use of various hand tools and finishing activities.
4. To develop awareness of and skill in using some of the tools and processes used in home maintenance activities.
5. To make a cutting board.

Related Concepts:

1. Material separation
   a. abrading
   b. filing
   c. sawing

2. Material addition
   a. finishing

3. Material contour and internal changes

Proposed Evaluation:

1. The learner given the necessary tools, materials, and instruction will be able to make a cutting board having rounded edges and corners.

2. The learner given the necessary tools, materials, and instruction will be able to make a cutting board that he/she is personally proud of. This pride can be measured by observing how the learner describes his/her work to others.

Logistic Decisions:

1. Time:
   a. 5 - 8, 30 minute work sessions
   b. 2, 20 minute demonstrations
   c. 1, 20 minute planning activity

2. Space: classroom or laboratory

3. Materials:
   a. Random pieces of S-4 hardwood, 1-2" thick 8-12" wide, 10-14" long
   b. 1 gallon mineral oil
   c. Rags (lint free)

4. Equipment:
   a. Surforms
   b. abrasive paper
   c. sanding blocks
   d. hand screw clamps
   e. Files
   f. Rulers
   g. Clamps

5. Personnel Development:
   a. Learners can work in pairs for some of the more physical activities.
   b. Individually when physical stamina allows.

Major Tasks and Related Content:

Tasks:

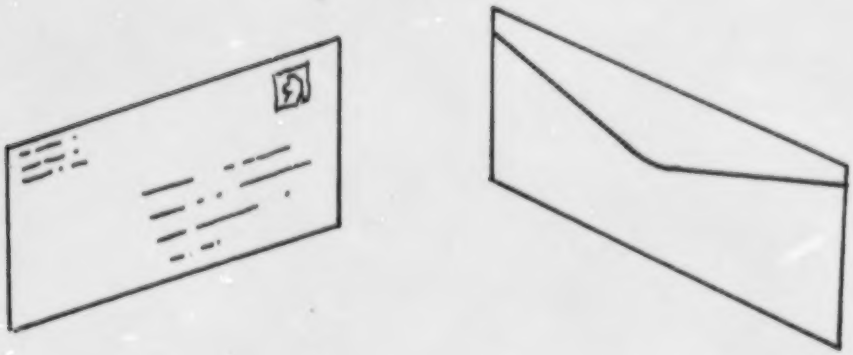
1. Measuring
2. Filing
3. Clamping
4. Abrading
5. Finishing

Related Content:

1. Food preparation
2. Work ethic
3. Re-finishing
4. Measurement
5. Blueprint reading

SNL ACTIVITY # 9

Learning Center: Paper (working with)



Objectives:

1. To develop or improve the finger dexterity and manipulative skills involved in working with paper.

2. To improve timing and eye-hand coordination.

Related Concepts:

Pride in accomplishment of a task.

Proposed Evaluation:

Will depend upon the type of task involving paper being performed.

Logistic Decisions:

Time: One hour

Space: Classroom or office area

Materials:
1. paper
2. envelopes
3. cardboard
4. stamps
5. cardboard dividers
6. file folders
7. filing containers
8. staples

Equipment:
1. stamp
2. stamp pad
3. collater
4. work surface
5. stapler

Personnel Development: (grouping)

Individual or small groups

Major Tasks and Related Content:

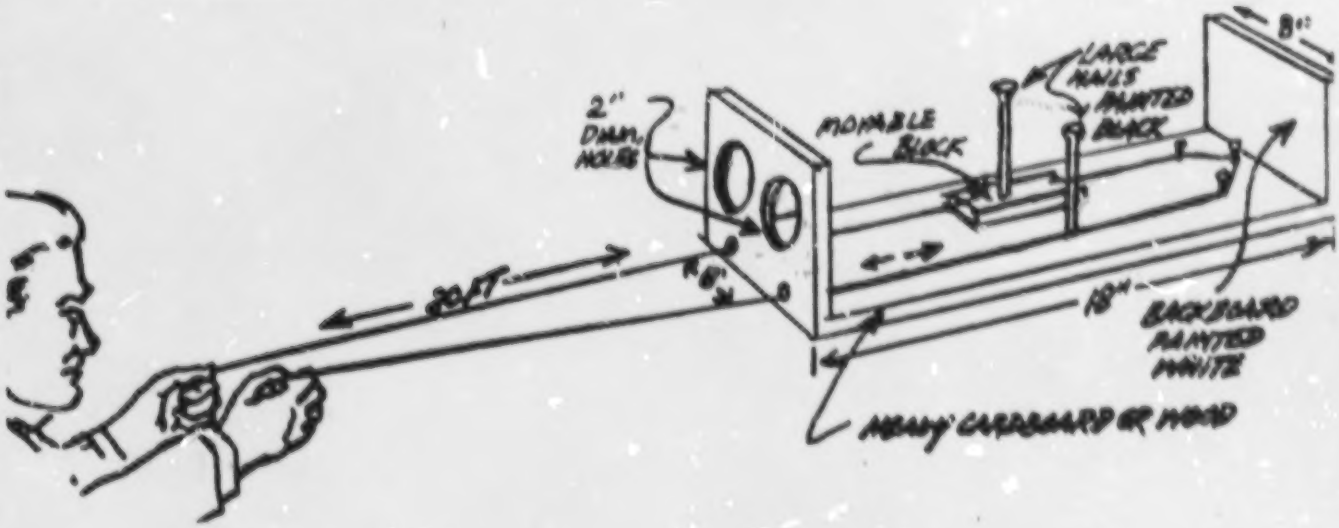
1. Folding paper
2. Envelope stuffing
3. Cutting paper
4. Collating paper
5. Assembling cardboard dividers
6. Stamping, labeling and pricing
7. Stapling

Bibliography:

Ginglend and Carlson, Ready to Work, Abingdon, 1977

SNL Activity # 10

Learning Center: Visual Percentor



Objectives:
1. Improve visual perception
2. Improve eye-hand coordination
3. Develop finger dexterity and manipulative abilities
4. Develop depth perception

Related Concepts:
1. measurement
2. arithmatic skills/Science skills
3. construction skills

Proposed Evaluation:
Successful completion and manipulation of individual "Man in Space" activity.

Logistic Decisions:
Time: 2-3 hours
Space: tables with large work surfaces
Materials:
Wood: one piece=18"x6"x3/4"
second piece=8"x6"x3/4"
Four wood screws approx. 1½" long
String, 45' long
Two nails
Small wooden block
Carpet tacks
Drill - 2" diameter
Black paint

Personnel Development:

individual or group project

Major Tasks and Related Content:

1. Prepare and assemble apparatus as shown in the diagram.
2. Clamp to edge of table and extend strings to approximately 20 feet.
3. Use a chair which allows person being tested to sit so his eyes are at the same level as holes in apparatus.
4. Using a ruler, add a scale to center of base board as shown in diagram.
5. Sitting on the chair and holding one string in each hand - attempt to line up nails as quickly as possible.

Maneuverings of equipment can be greatly facilitated if individuals have adequate depth perception

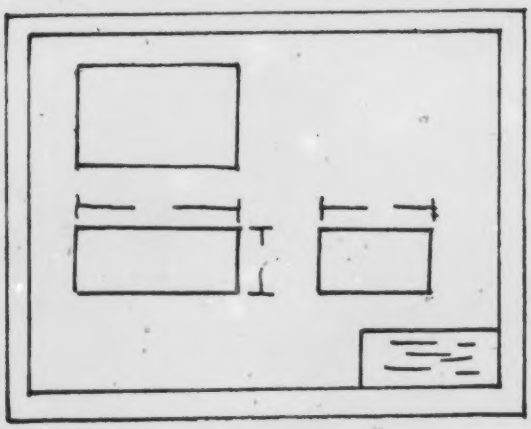
Discuss careers that involve our use of depth perception.

Bibliography:

NASA Educational Resources , NASA FACTS - Activity Sheets - Science Series, Public Information Office, August, 1967.

SNL ACTIVITY # 11

Learning Center: Blueprint Reading



Objectives:

1. To identify and understand the measurements of width, length, and thickness as shown on a blueprint.

2. To identify and transfer the dimensions of thickness, width, and length from print to materials.

3. To identify and transfer dimensions of thickness, width, and length from material to print.

4. Improved perception of two and three-dimensioned objects.

Related Concepts:

a. Sketching
b. Measurement
c. Reading

Proposed Evaluation:

1. The learner given a simple solid form, (square, rectangle, or triangle) will be able to measure it and draw a simple sketch of it, including dimensions.

2. The learner, given a blueprint of a product to be produced, will be able to transfer the dimensions from the print to the material.

Logistic Decisions:

1. Time: Repeated with different activities until concept is understood.

2. Space: Classroom or laboratory.

3. Materials:
   a. paper
   b. pencils
   c. objects to be sketched
   d. blueprints
   e. material for products

4. Equipment:
   a. rulers or scales

5. Personnel Development:
   a. Individual

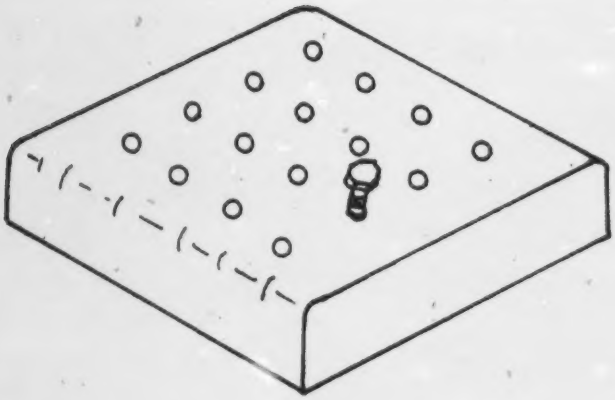
Major Tasks and Related Content:

1. Tasks
   a. Use and development of eye-hand coordination.
   b. Use and improvement of finger dexterity.
   c. Use and improvement of mental stamina.
   d. Sketching and reading blueprints.
   e. Layout

2. Related Content
   a. Thickness
   b. Proportion
   c. Dimensions
   d. Measurement
   e. Area
   f. Volume

SNL Activity # 12

Learning Center: Bolt Board (use or make)



Objectives:

1. Develop and improve sorting and matching skills
2. Develop and improve grouping skills
3. Develop and improve finger dexterity
4. Improve physical and mental stamina

Related Concepts:

1. Fastening or addition
2. Time and motion
3. Fasterners

Proposed Evaluation:

1. The learner given several opportunities to use bolt boards should exhibit or become more proficient in sorting and grouping.
2. The learner given several opportunities to use bolt boards should be able to work for longer periods of times by increasing physical stamina.
3. The learner given several opportunities to use bolt boards should be able to show improved finger dexterity by progressing to smaller and smaller bolts.
4. The learner should be able to demonstrate progress in the areas of: physical and mental stamina, memory, eye-hand coordination, visual and tactile discrimination, finger dexterity and manipulative abilities by progressing from one level of difficulty to the next.

Logistic Decisions:

1. Time: progressing in 10 minute intervals
2. Space: classroom or simulated work stations
3. Materials:
   a. various sizes and types of bolts, nuts, and washers
   b. bolt boards with appropriate size and number of holes
4. Equipment: clock or timer
5. Personnel Development (grouping): individual

Major Tasks and Related Content

Tasks:

1. Assembly or addition
2. Sorting and matching
3. Grouping
4. Small and larger motor control
5. Stamina
6. Mental Skills
7. Disassembly

Related Content:

1. Material handling
2. Learner to work station relationships

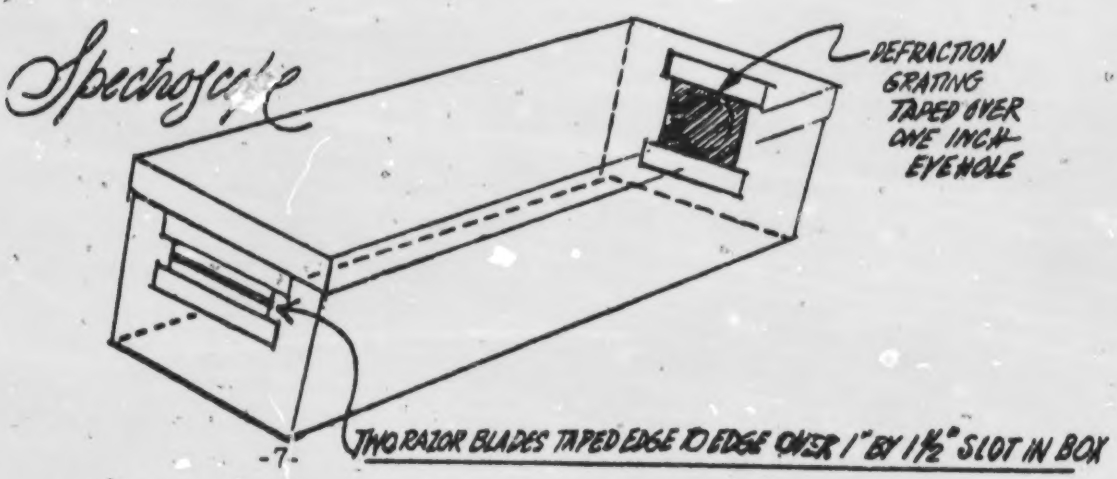
Bibliography

Ginglend and Carlson, Ready to Work, Abingdon, 1977.

SNL Activity # 13

Learning Center: Spectroscope

REV.


Spectroscope
DEFRACTION GRATING TAPED OVER ONE INCH EYEHOLE
-7-
TWO RAZOR BLADES TAPED EDGE TO EDGE OVER 1" BY 1½" SLOT IN BOX

Objectives:
1. Exercise fine muscle control
2. Stimulate memory
3. Increase attention span
4. Improve timing

Related Concepts:
1. Language arts
2. Science skills
3. Arithmetic skills
4. Design

Proposed Evaluation:

Successful completion and demonstration of the spectroscope

Logistic Decisions:
Time: 2 hours
Space: large work tables
Materials:
- Shoe box
- 2 Razor blades
- Transmission defractions grating
- Platinum wire
- Table salt
- Sugar
- Candle

Personnel Development: Individual project

Major Tasks and Related Content:

Man is able to study the distant planets and stars by using an ingenious device called the spectroscope. The spectroscope is able to break up ordinary white light into its constituent parts.

1. Cut a thin slit in one end of the shoe box.
2. Cut a hole smaller than defraction grating in other end of box - being careful to avoid touching the grating's surface, tape grating over large hole.
3. Tape the razor blades over small slit - make sure that only a small slit exists when completed.
4. Look at the flame of the candle through the spectroscope.
5. If you have difficulty seeing the spectrum, try rotating the box as you look through the flame.
6. Check encyclopedia on "spectrums" for more details.

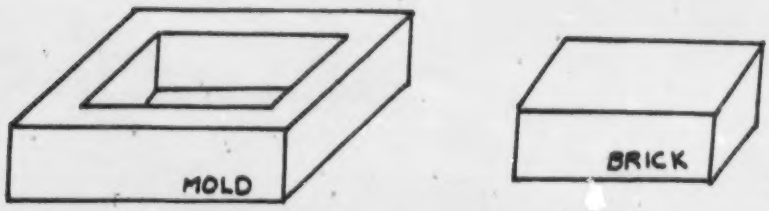
Pour onto candle flame sparingly - sugar, salt, baking soda.

Bibliography:

NASA Educational Resources, NASA FACTS - Activity Sheets - Science Series, Public Information Office, August, 1967.

SNL ACTIVITY # 14

Learning Center: Making of Bricks



Objectives:

1. To demonstrate to the learner how the production of materials has improved.

2. To improve manipulative abilities, eye-hand coordination, and physical and mental stamina by utilizing a variety of forming processes to produce bricks.

Related Concepts:

1. Forming - other types of contour changes
2. Construction
3. Strength and hardness
4. Energy and machines

Proposed Evaluation:

1. The learner following the activity, will be able to describe how bricks could be made and how bricks are used for construction.

2. The learner should be able to describe or show some of the characteristics of a good brick.

Logistic Decisions:

Time: 2-6 hours
Space: Classroom
Materials:

1. mud
2. clay
3. straw
4. sod
5. water

Equipment:

1. mixer
2. forms
3. press

Personnel Development:

Small groups

Major Tasks and Related Content:

SUGGESTED ACTIVITIES:

1. Have the children make bricks (during this time encouraging them to find easier ways to do this process).

2. Have the children read about the different ways bricks are made and learn about the different kinds of bricks. (In such books as World Book)

3. Have children study the history of brickmaking. (Connect it with study of Egypt) In ancient Egypt bricks were made.

4. Compare the progress of brickmaking with the progress of other industries, such as in the beginning of human hands and now it is done by machines.

5. The child can first start out by pressing the clay into molds by using his hands.

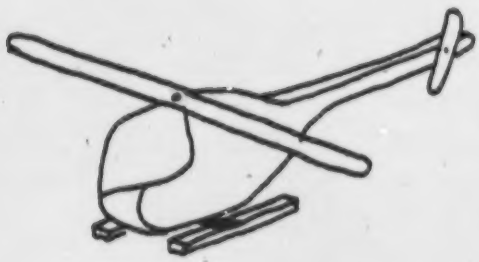
6. Next, the child may find it is easier to press down clay with a wooden block.

7. Then you may show the child how to convert his energy into a machine to press the bricks (such as converting a drill press into pressing out the clay).

8. Then the children may want to find an easier way to release the bricks. Now discuss how real bricks are made in an assembly line.

SNL ACTIVITY # 15

Learning Center: Helicopter (building)



Objectives:

1. To improve: finger dexterity and manipulative abilities, eye-hand coordination, and visual and tactile discrimination.

2. To develop awareness of and skill in using some of the tools and processes used in home maintenance activities.

3. To develop and improve blueprint reading and measuring skills.

4. To build a helicopter using wood, plastic, glue, and mechanical fasteners.

Related Concepts:

1. The learner, given the necessary instruction, supplies and equipment, will be able to fabricate a transportation device, (helicopter).

2. The learner, given a blueprint or templates, will be able to transfer the dimensions to the material.

3. The learner, following the discussion of transportation devices, will be able to describe other forms of transportation.

Logistic Decisions:

Time: 6 - 10 hours
Space: Classroom or laboratory

Materials:

a. 1/2" thick soft Pine
b. 1/8" clear plexiglass
c. Assorted wood screws and nails
d. Adhesives
e. Paint
f. Abrasives

Equipment:

a. Hand saws
b. Files and surforms
c. Hammers
d. Screwdrivers
e. Safety glasses
f. Drill and drill bits
g. Heat strip
h. Rulers or templates
i. Clamps
j. Center punch

Personnel Development:

1. Individual
2. Small groups when physical stamina is a problem for some individuals

Major Tasks and Related Content:

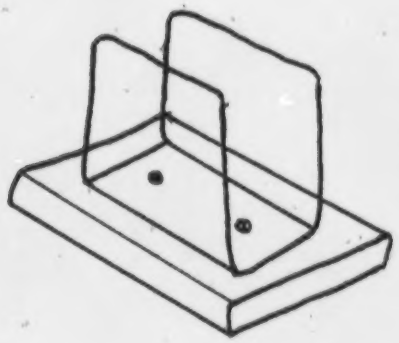
1. Tasks
   a. Cutting and sawing
   b. Filing
   c. Abrading
   d. Drilling
   e. Glueing
   f. Fastening
   g. Heating
   h. Bending
   i. Painting
   j. Assembly
   k. Layout

2. Related Content

   a. Transportation
   b. Measurement
   c. Color
   4. Friction

SNL ACTIVITY # 16

Learning Center: Napkin Holder



Objectives:

1. To mass produce, on an assembly line, 100 napkin holders for later sale and distribution.

2. To relate many of the activities or tasks to real life jobs.

3. To provide activities where learners work together and depend upon each other.

4. To improve the learner's understanding of timing and how it relates to a production activity.

5. To provide an activity in which pride in accomplishment can be stressed.

6. To provide instruction in the safe and proper use of equipment.

Related Concepts:

1. material handling
2. marketing
3. purchasing
4. manufacturing
5. costs
6. occupations or careers
7. quality control
8. planning
9. unions

Proposed Evaluation:

1. The learners provided the necessary instruction, materials equipment, and space, will produce 100 napkin holders in a period of three hours.

2. The learners, included in the production activity, will demonstrate improved social relationships and abilities by working together in a constructive manner during the planning, production, and marketing of the product.

Logistic Decisions:

Time: Planning, training & setup - 12 hours
Production - 3 - 4 hours
Marketing - 3 - 4 hours

Space: Classroom and small industrial education laboratory

Materials:

1. S4 Hardwood
   120 pieces 3/4 x 3 1/2 x 7
2. Clear plastic (plexiglass)
   120 pieces 1/8 x 6 x 15
3. Flathead wood screws
   300 #4,5/8"
4. Abrasive paper
5. Natural oil
6. Packaging
7. Rags

Equipment:

1. Drill presses
2. Sanders
3. Heat strip
4. Drummel saw or jig saws
5. Safety glasses
6. Necessary jigs and fixtures
7. Tables
8. Screwdrivers
9. Drill bits
10. Rulers or templates
11. Clamps
12. Center punch

Personnel Development:

1. Individual, small group, and large group

Major Tasks:

1. Sawing
2. Sanding
3. Finishing
4. Fastening
5. Bending
6. Packaging
7. Material transportation
8. Drilling
9. Printing
10. Sales
11. Planning
12. Producing
13. Measuring
14. Timing
15. Layout

Related Content:

1. Skills
2. Division of labor
3. Fringe benefits
4. Benefits of working
5. Accepting and completing responsibilities

Bibliography:

Ginglend and Carlson, Ready to Work, Abingdon, 1977

SNL ACTIVITY # 17

Learning Center: Sun Pictures

Objectives:

1. To demonstrate the process of photography without the use of a darkroom and many of the other expensive pieces of equipment used in regular photography.

2. To show a photographic communication process that provides the learner with almost immediate feedback.

3. To improve: visual and tactile discrimination, intellectual skills, and pride in accomplishment.

Related Concepts:

1. Communications
2. Chemical Reactions
3. Light
4. Negative and positive
5. Color
6. Measurement

Proposed Evaluation:

1. The learner, given appropriate instruction, materials, and equipment will be able to expose and fix his/her chosen photographic image.

Logistic Decisions:

Time: Instruction and demonstration, 30 - 60 minutes.

Space: Classroom

Materials:

a. negatives or positives
b. Kodak Studio Proof F Paper (P.O.P., printing-out-paper)

c. Fixer
d. Water

Equipment:

a. Trays
b. Light source
c. Timer

Personnel Development: (Grouping)

Individual or small groups.

Major Tasks and Related Content:

Tasks

1. Exposing
2. Fixing
3. Flattening
4. Drying

Related Content:

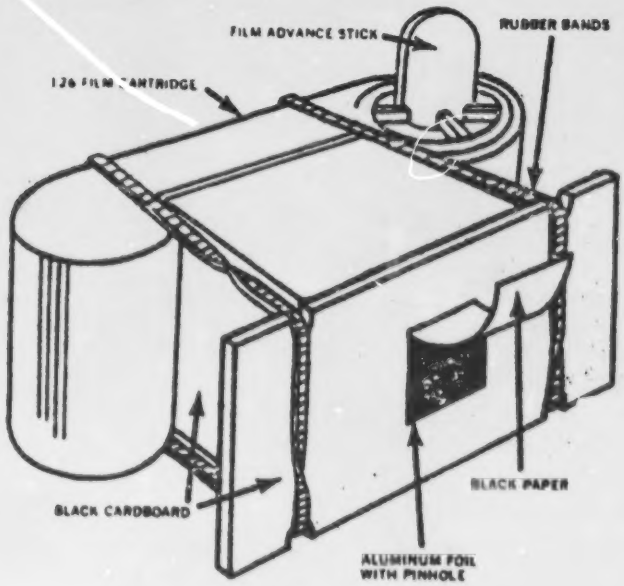
1. Black & White Photography
2. Color Photography
3. Communications & Documentation

Bibliography:

Kodak instructions for P.O.P. papers or Studio Proof F Paper.

SNL ACTIVITY # 18

Learning Center: Cartridge Pinhole Camera
(Make and Use)



Objectives:

1. The learner will develop skills in using a sharp knife, scissors, tape, coping saw, and layout tools.

2. The learner will comprehend the concepts of the photographic process.

3. The learner will improve upon his/her thinking processes by planning the picture taking and development processes.

Related Concepts:

1. Measuring
2. Communication (documentation)
3. Creativity
4. Light, color, spectrum
5. Vocabulary

Proposed Evaluation:

1. The learner, given appropriate instruction, will be able to use his/her camera successfully and explain his understanding of how the camera works to others.

Logistic Decisions:

Time: Instruction and demonstrations, 1-3 hours.
Camera building, 1-2 hours.

Space: Classroom

Materials and Equipment:

1 cartridge Kodak Verichrome Pan Film 126
1 piece black cardboard, 1 1/4" x 5 3/4"
1 piece black cardboard, 1 1/2" x 2 3/4", with 1/2" square opening cut in center
1 piece aluminum foil, 1" square
1 piece black paper, 1" square
1 wooden tongue depressor
2 rubber bands
1 No. 10 sewing needle
black masking tape

Personnel Development:

Individual

Major Tasks and Related Content:

Tasks

1. cutting
2. folding
3. assembly
4. taping
5. fastening

Related Content

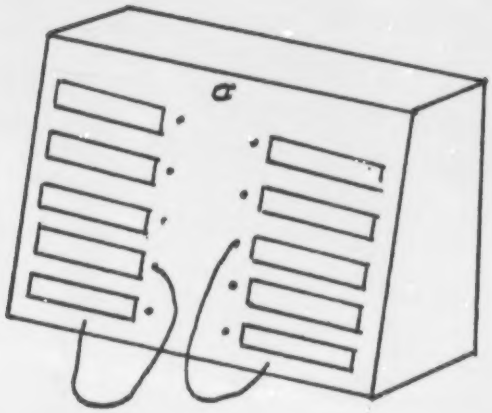
1. Satellites
2. Reading
3. Recording
4. Parts of a camera

Bibliography:

How to Make and Use A Cartridge Pinhole Camera, Eastman Kodak Company, Rochester, NY 14650

SNL ACTIVITY # 19

Learning Center: Buzz Board (fabricate and use)



Objectives:

1. To improve the learner's ability to use some of the common tools used for home maintenance and improvement activities.

2. To understand and wire a simple electrical circuit.

3. To use the buzz board for simple matching activities such as: measurement, mathematics, tools and processes, visual comparisons, etc.

Related Concepts:

1. Fastening or addition
2. Components and sub-assemblies
3. Communications
4. Cutting or separation

Proposed Evaluation:

1. The learners, given the appropriate instruction and materials will be able to wire a simple circuit that functions correctly.

2. The learner, given the appropriate instruction, will be able to trace the flow of the electricity in the circuit.

3. The learners, given the appropriate instruction, materials tools, blueprints or template, will be able to assemble a buzz board.

4. The learners, after the buzz board is completed, will be able to use it successfully to match the items placed on it by the teacher.

Logistic Decisions:

Time: Instruction and demonstration - 2-4 hours

Space: Classroom or laboratory

Materials:

a. Nails
b. Adhesive
c. Wire
d. Banana plugs and recepticals
e. Batteries
f. Battery holder
g. Switch
h. Light bulb and socket
i. Name holders
j. Solder
k. Tape
l. Wood for buzz board (sizes to depend on need)

Equipment:

a. Hammers
b. Screwdrivers
c. Wrenches
d. Wire cutters
e. Wire strippers
f. Drill and drill bits
g. Soldering iron or gun
h. Rulers
i. Center punch

Personnel Development (grouping)

Individual and small groups depending on stamina and eye-hand coordination required for the task.

Major Tasks and Related Content:

1. Drilling
2. Fastening and assembly or addition
   a. nailing
   b. glueing
   c. screwing
3. Splicing
4. Stripping
5. Measuring
6. Cutting or separation
7. Abrading
8. Taping
9. Layout
10. Clamping

VOCATIONAL SPECIAL NEEDS

NATIONAL, STATE, AND LOCAL RESOURCES

Associations for Handicapped Persons

American Foundation for the Blind, 15 W. 16th Street, New York, NY 10011

American Heart Association, 44 East 23rd Street, New York, NY 10010

American Occupational Therapy Association, 251 Park Avenue, New York, NY 10010

The Arthritis Foundation, 1212 Avenue of the Americas, New York, NY 10036

Disabled Living Foundation, 346 High Street, Kensington, London, W. 14, 8 N.S., England

Federation of the Handicapped, 211 West 14th Street, New York, NY 10011

Muscular Dystrophy Associations of America, 1970 Broadway, New York, NY 10019

National Association of the Physically Handicapped, 2 Meetinghouse Road, Merrimack, New Hampshire 03054

National Association for Retarded Citizens, 2709 Avenue E, East, Arlington, Texas 76011

National Congress of Organizations of Physically Handicapped, 7611 Oakland Avenue, Minneapolis, Minnesota 55423

National Easter Seal Society for Crippled Children and Adults, 2023 West Ogden Avenue, Chicago, Illinois 60612

National Epilepsy League, 6 N. Michigan Avenue, Chicago, IL 60602

National Foundation for Birth Defects (formerly the March of Dimes), Box 2000, White Plains, New York 10602

National Multiple Sclerosis Society, 257 Park Avenue, South, New York, NY 10017

National Odd Shoe Exchange, 1415 Ocean Front, Santa Monica, California 90401

National Paraplegia Foundation, 333 North Michigan Avenue, Chicago, Illinois 60601

National Rehabilitation Association, 1522 K Street, N.W., Washington, D.C. 20005

National Wheelchair Athletic Association, 40-42 62nd Street, Woodside, New York 11377

Science for the Blind Products, 221 Rock Hill Road, Bala Cynwyd, PA 19004

United Cerebral Palsy Association, 66 East 34th Street, New York, NY 10016

Rehabilitation Agencies

American Physical Therapy Association, 1156 15th Street, N.W., Washington, D.C. 20005

American Printing House for the Blind, 1839 Frankfort Avenue, Louisville, KY 40206

Kenny Rehabilitation Institute, 1800 Chicago Avenue, Minneapolis, Minnesota 55404

International Association of Rehabilitation Facilities, 5530 Wisconsin Avenue, Washington, D.C. 20015

International Society for the Rehabilitation of the Disabled, 219 East 44th Street, New York, NY 10017

Vocational Rehabilitation

American Occupational Therapy Association, 6000 Executive Boulevard, Suite 200, Rockville, Maryland 20852

Department of Health, Education, and Welfare, Rehabilitation Services Administration, Washington, D.C. 20201

Employment of the Handicapped (Address your state capitol)

Goodwill Industries of America, 9200 Wisconsin Avenue, Washington, D.C. 20014

State divisions of vocational rehabilitation

Education

Association for Children with Learning Disabilities, 2200 Brownsville Road, Pittsburgh, Pennsylvania 15210

Clothing and Research Development Foundation, Inc., 48 East 66th Street, New York, NY 10021

The Council for Exceptional Children, 1411 S. Jefferson Davis Highway, Arlington, Virginia 22202

Department of Health, Education, and Welfare, Office of Education, Bureau of Education for the Handicapped, Washington, D.C. 20202; "Closer Look," Box 1492, Washington, D.C. 20036

National Rehabilitation Counseling Association, 1522 K Street, N.W., Washington, D.C. 20005

Public Affairs Pamphlets, 381 Park Avenue, South, New York, NY 10016

Public Health Service, Division of Chronic Diseases, U.S. Department of Health, Education and Welfare, Washington, D.C. 20201

State and local boards of education

U.S. Office of Education, Division on Handicapped Children, Washington, D.C. 20202

U.S. Public Health Service, Office of Information, 5600 Fishers Lane, Rockville, Maryland 20852

Recreation

American Association for Health, Physical Education, and Recreation, Unit on Programs for the Handicapped, 1201 16th Street N.W., Washington, D.C. 20036

Camps: contact your state or local Society for Crippled Children and Adults (Easter Seal), Association for Retarded Citizens, or United Cerebral Palsy Association

Indoor Sports Club, 1145 Highland Street, Napoleon, Ohio 43545